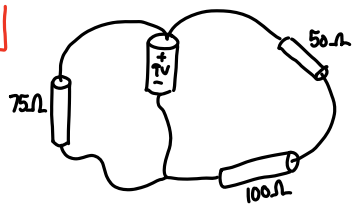
Taylor Larrechea Ch.31
Dr. Middleton PHYS 132 HW CQ: 3 P: 1,6,8
3-2-17 Ch.31

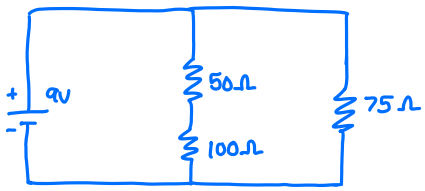
Problems

31.P.1

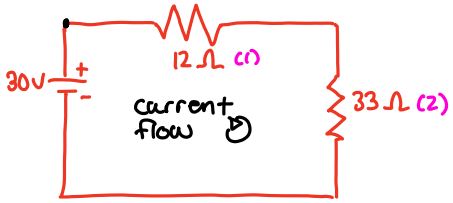


= resistor

= Battery



31.P.6



$-I(12\Omega) - I(33\Omega) = 30V$

$-I(45\Omega) = 30V$

$I = -0.66A$

$|I| = 0.66A$

(1): $I = \frac{\Delta V}{R} \therefore \Delta V = IR$

$R_1 = 12\Omega$ $\Delta V_1 = (0.66A)(12\Omega)$

$I_1 = 0.66A$ $\Delta V_1 = 8V$

(2): $I = \frac{\Delta V}{R} \therefore \Delta V = IR$

$R_2 = 33\Omega$ $\Delta V_2 = (0.66A)(33\Omega)$

$I_2 = 0.66A$ $\Delta V_2 = 22V$

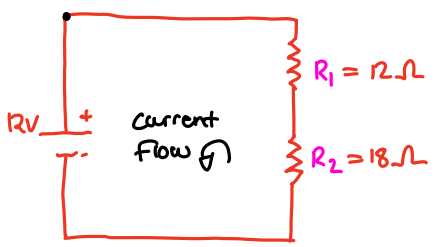
$\Delta V_1 + \Delta V_2 = \Delta V$

$8V + 22V = 30V$

$30V = 30V$ ✓

$\Delta V_1 = 8V$
$\Delta V_2 = 22V$

31.P.8



$-I(12\Omega) - I(18\Omega) = 12V$

$-I(30\Omega) = 12V$

$I = -0.4A$

$|I| = 0.4A$

$P_1 = 1.92\ W$
$P_2 = 2.88\ W$

$P = I^2R$

$P = I\Delta V_R$

$P = \frac{\Delta V_R^2}{R}$

R_1: $P = I_1^2 R_1$ $P = (0.4a)^2(12\Omega)$

$I = 0.4a$ $P = 1.92\ W$

$R = 12\Omega$

R_2: $P = I_2^2 R_2$ $P = (0.4a)^2(18\Omega)$

$I = 0.4a$ $P = 2.88\ W$

$R = 18\Omega$

Conceptual

31.C.3

The potential difference when the switch is broken is equal to the potential difference of the battery which is 3V

$\Delta V_{1\to 2} = 3V$